Asif Imran

Assistant Professor of Software Engineering   aimran@csusm.edu
Department of Computer Science and Information Systems
California State University San Marcos   917-362-4048
San Marcos, CA 92096, USA

Research Interests

My research interest focuses on optimizing software resource utilization through code smell refactoring in software running on cloud environment. My efforts combine cloud computing, software engineering, and machine learning to design and develop solutions which optimizes resource usage in large scale computing systems. I have made research contributions in the area of automated code smell refactoring, software sustainability, resource usage improvement in cloud, and software security. Major application areas of my research include cloud services, software project management, health sciences, and energy usage.

Education

Ph.D., Computer Science and Engineering, **University at Buffalo**, Amherst, NY 14260, USA, expected: July 2022
> Thesis: Prediction and analysis of impact on resource usage due to code smell refactoring
> Advisor: Prof. Tevfik Kosar

MS, Software Engineering, **IIT, University of Dhaka**, Dhaka 1000, Bangladesh, July 2014
> Thesis: Provenance based security assurance in cloud computing
> Advisor: Prof. Kazi Muheymin-us Sakib

BS, Information Technology, **IIT, University of Dhaka**, Dhaka 1000, Bangladesh, December 2012

Academic Experience

- Research assistant, Dept. of Computer Science and Engineering, University at Buffalo, NY, USA, 2021
- Research intern, IBM T. J. Watson Research Lab, Yorktown Heights, NY, USA, 2020
- Course instructor, Dept. of Computer Science and Engineering, University at Buffalo, NY, USA, 2019
- Teaching Assistant of Operating Systems, Dept. of Computer Science and Engineering, University at Buffalo, NY, USA, 2018
- Teaching Assistant of Parallel and Distributed Programming, Dept. of Computer Science and Engineering, University at Buffalo, NY, 2017
- Lecturer, Institute of Information Technology (IIT), University of Dhaka, Bangladesh, 2014-2017

Honors and rewards

Global Innovation Challenge LIGHT Fellow, 2019

CSE Chair's Fellowship, University at Buffalo, 2017

Academic excellence gold medal winner, IIT, University of Dhaka 2015

Publication

Refereed Journal Articles

1. Imran, A. and Kosar, T., 2021. Software Sustainability: A Systematic Literature Review and Comprehensive Analysis. Journal of Systems and Software, Elsevier publications (under review).

2. Imran, A., Aljawarneh, S.A. and Sakib, K., 2016. Web data amalgamation for security engineering: Digital forensic investigation of open source cloud. J. Univers. Comput. Sci., 22(4), pp.494-520.

3. Imran, A., Ul Gias, A., Rahman, R. and Sakib, K., 2013. Provintsec: a provenance cognition blueprint ensuring integrity and security for real life open source cloud. International Journal of Information Privacy, Security and Integrity, 1(4), pp.360-380.

Refereed Conference Articles

4. Imran, A. and Kosar, T., 2020. The Impact of Auto-Refactoring Code Smells on the Resource Utilization of Cloud Software. In 2020 International Conference on Software Engineering and Knowledge Engineering (SEKE), KSI Research.

5. Imran, A., 2019, September. Design smell detection and analysis for open source java software. In 2019 IEEE International Conference on Software Maintenance and Evolution (ICSME) (pp. 644-648). IEEE.

6. Nine, M.S.Z., Di Tacchio, L., Imran, A., Kosar, T., Bulut, M.F. and Hwang, J., 2018, December. Greendataflow: Minimizing the energy footprint of global data movement. In 2018 IEEE International Conference on Big Data (Big Data) (pp. 335-342). IEEE.

7. Imran, A., Nine, M.S., Guner, K. and Kosar, T., 2018, January. Onedatashare-a vision for cloud-hosted data transfer scheduling and optimization as a service [onedatashare-a vision for cloud-hosted data transfer scheduling and optimization as a service]. In Proceedings of the 8th International Conference on Cloud Computing and Services Science (Vol. 1).

8. Rawshan, L., Islam, J. and Imran, A., 2016. Identifying Overloaded Servers and Managing Dynamic Placement of Virtual machines in Cloud. International Journal of Computer Applications, 975, p.8887.

9. Shamsuddoha, M., Alam, M.S., Asif, S.A., Aljawarneh, S., Sakib, K. and Imran, A., 2015, September. CLBS-3: A Three-Tier Load Balancer for ensuring Fault-Tolerance of Software running in Open-Source Cloud. In Proceedings of the The International Conference on Engineering MIS 2015 (pp. 1-5).

10. Rawshan, L., Sakib, K. and Imran, A., 2015, September. Time-Waved Monitoring and Emergent Self Adaption of Software Components in Open Source Cloud. In Proceedings of the The International Conference on Engineering MIS 2015 (pp. 1-6).

11. Hasan, T., Imran, A. and Sakib, K., 2014, December. A case-based framework for self-healing paralysed components in Distributed Software applications. In The 8th International Conference on Software, Knowledge, Information Management and Applications (SKIMA 2014) (pp. 1-7). IEEE.

12. Imran, A., Dey, E.K. and Sakib, K., 2014. Active-Threaded Algorithms for Provenance Cognition in the Cloud preserving Low Overhead and Fault Tolerance. In 2014 Recent Advances in Information and Communication Technology (pp. 249-255).

13. Gias, A.U., Rahman, R., Imran, A. and Sakib, K., 2014. TFPaaS: Test-first Performance as a Service to Cloud for Software Testing Environment. In 2013 International Conference on Innovative Technologies (INTECH) (pp. 20-32).

14. Imran, A., Nahar, N. and Sakib, K., 2014, May. Watchword-oriented and time-stamped algorithms for tamper-proof cloud provenance cognition. In 2014 International Conference on Informatics, Electronics Vision (ICIEV) (pp. 1-6). IEEE.

15. Imran, A., Gias, A.U., Rahman, R., Seal, A., Rahman, T., Ishraque, F. and Sakib, K., 2014, March. Cloud-niagara: A high availability and low overhead fault tolerance middleware for the cloud. In 16th Int'l Conf. Computer and Information Technology (pp. 271-276). IEEE.

16. Rahman, R., Imran, A., Gias, A.U. and Sakib, K., 2013, August. A peer to peer resource provisioning scheme for cloud computing environment using multi attribute utility theory. In Third International Conference on Innovative Computing Technology (INTECH 2013) (pp. 132-137). IEEE.

17. Gias, A.U., Imran, A., Rahman, R. and Sakib, K., 2013, August. IVRIDIO: Design of a software testing framework to provide Test-first Performance as a service. In Third International Conference on Innovative Computing Technology (INTECH 2013) (pp. 520-525). IEEE.

18. Imran, A., Gias, A.U. and Sakib, K., 2012, July. An empirical investigation of cost-resource optimization for running real-life applications in open source cloud. In 2012 International Conference on High Performance Computing Simulation (HPCS) (pp. 718-723). IEEE.

19. Khaled, S.M., Islam, M.S., Rabbani, M.G., Tabassum, M.R., Gias, A.U., Kamal, M.M., Muctadir, H.M., Shakir, A.K., Imran, A. and Islam, S., 2009, November. Combinatorial color space models for skin detection in sub-continental human images. In International Visual Informatics Conference (pp. 532-542). Springer, Berlin, Heidelberg.

Publication in progress

20. Imran, A., Kosar, T., Zola, J., Bulut, F., 2021. The Impact of Code Smell Auto-refactoring on Application Resource Consumption. Submitted to the International Conference on Software Engineering (ICSE).

Other publications

21. Ami, A.S., Imran, A., Gias, A.U. and Sakib, K., 2020. Effects of Internship on Fresh Graduates: A case study on IIT, DU students. arXiv preprint arXiv:2008.07450.

22. Tabassum, M.R., Gias, A.U., Kamal, M., Muctadir, H.M., Ibrahim, M., Shakir, A.K., Imran, A., Islamm, S., Rabbani, M., Khaled, S.M. and Islam, M., 2010. Comparative study of statistical skin detection algorithms for subcontinental human images. arXiv preprint arXiv:1008.4206.

Conference presentations

1. "Eliminating code smells for greener software". Three minute thesis competition, University at Buffalo, NY, USA, February 2021.

2. "Analysis of software code smells and their affect on cloud resource usage". IBM intern talk. IBM T. J. Watson research Center, NY, USA, November 2020.

3. "Impact of batch refactoring code smells on software resource consumption". International Conference on Software Engineering and Knowledge Engineering (SEKE 2020), Pittsburgh, PA, USA, July 2020.

4. "Design Smell Analysis for Developing and Established Open Source Java Software". The International Conference on Software Maintenance and Evolution (ICSME), Cleveland, OH, USA, November 2019.

5. "How smells in large scale distributed software affect cpu and memory consumption?". CSE Grad Upbeat at University at Buffalo, NY, USA, November 2019.

6. "Improving software sustainability by elimination of code smells". Second Workshop on Software Sustainability. Organized by US Research Software Sustainability Institute, University of Illinois at Urbana-Champaign, October 2019.

7. "CLBS-3: A Three-Tier Load Balancer for ensuring Fault-Tolerance of Software running in Open-Source Cloud". The International Conference on Engineering and MIS, Istanbul, Turkey, June 2015.

8. "TFPaaS: Test first Performance as a Service to Cloud for Software Testing Environment". International Conference on Innovative Technologies (INTECH), London, UK, March 2014.

9. A peer to peer resource provisioning scheme for cloud computing environment using multi attribute utility theory. International Conference on Innovative Technologies (INTECH), London, UK, March 2014.

10. Cloud-niagara: A high availability and low overhead fault tolerance middleware for the cloud. IEEE International Conference on Computer and Information Technology (ICCIT), Dhaka, Bangladesh, February 2013.

11. "An empirical investigation of cost-resource optimization for running real-life applications in open source cloud." International Conference on High Performance Computing and Simulation (HPCS), Madrid, Spain, July 2012.

Teaching Experience

Semester	Course code	Course title	Number of students	Institution
Fall 2019	CSE 421	Operating Systems	124	University at Buffalo
Summer 2019	CSE 421	Operating Systems	14	University at Buffalo
Summer 2019	CSE 478	Computer Vision and Image Processing	17	University at Buffalo
Spring 2019	CSE 421	Operating Systems	110	University at Buffalo
Fall 2018	CSE 421	Operating Systems	131	University at Buffalo
Spring 2018	CSE 421	Operating Systems	122	University at Buffalo
Fall 2017	CSE 481	Parallel and Distributed Programming	32	University at Buffalo

Reference

Dr. Tevfik Kosar, Professor, Dept. of Computer Science and Engineering, University at Buffalo and Program Director at NSF

Phone: 716-645-2323   Email: tkosar@buffalo.edu

August 16, 2022